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Wood, Jr.

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(54) **METHOD OF ADDRESSING MESSAGES,
 METHOD OF ESTABLISHING WIRELESS
 COMMUNICATIONS, AND
 COMMUNICATIONS SYSTEM**

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 18, 2000, which is a continuation of application No. 09/026,
 045, filed on Feb. 19, 1998, now Pat. No. 6,072,801.

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(52) **U.S. Cl.** **370/329; 370/437; 370/462**

(58) **Field of Search** **370/462, 408,
 370/230, 437, 475, 441, 442, 449, 458,
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(57) **ABSTRACT**

A method of establishing wireless communications between an interrogator and individual ones of multiple wireless identification devices, the method comprising utilizing a tree search method to establish communications without collision between the interrogator and individual ones of the multiple wireless identification devices, a search tree being defined for the tree search method, the tree having multiple levels representing subgroups of the multiple wireless identification devices, the number of devices in a subgroup in one level being half of the number of devices in the next higher level, the tree search method employing level skipping wherein at least one level of the tree is skipped. A communications system comprising an interrogator, and a plurality of wireless identification devices configured to communicate with the interrogator in a wireless fashion, the respective wireless identification devices having a unique identification number, the interrogator being configured to employ a tree search technique to determine the unique identification numbers of the different wireless identification devices so as to be able to establish communications between the interrogator and individual ones of the multiple wireless identification devices without collision by multiple wireless identification devices attempting to respond to the interrogator at the same time, wherein levels of the tree are occasionally skipped.

26 Claims, 3 Drawing Sheets

